

**REMARKS**

**Rejections under 35 USC §103(a)**

**Claims 1 and 7 were rejected under 35 USC §103(a) as being obvious over WO 01/18276 A1 in view of JP 11-286770 A.**

Responding to Applicants' previous response, the Examiner alleged: "The applicant's arguments filed on October 2, 2008 have been fully considered but they are moot in light of new ground of rejection as discussed in the paragraph above." The comments in the rejection are apparently identical except for the following portion:

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a Mo nitride layer at the surface of the worked Mo alloy material of Takada et al. ('368) as disclosed by JP ('770 A) in order to improve the corrosion resistance and the mechanical strength of the worked Mo alloy material of Takada et al. ('368) as disclosed by JP ('770 A) (abstract and paragraph [0006], machine translation). The yield strength of the worked Mo alloy material with the Mo nitride surface layer of Takada et al. ('368) in view of JP ('770 A) would be **inherently higher** than that of the worked Mo alloy material without the Mo nitride surface layer of Takada et al. ('368) in view of JP ('770 A).

(Office Action, page 3, line 16 to page 4, line 3). However, there are problems regarding the Examiner's allegation of inherency.

First, the Examiner applies inherency to a combination of prior art. Regarding a rejection under 35 USC 102/103, the MPEP explains as follows:

III. A REJECTION UNDER 35 U.S.C. 102/103 CAN BE MADE WHEN **THE PRIOR ART PRODUCT SEEMS TO BE IDENTICAL** EXCEPT THAT THE PRIOR ART IS SILENT AS TO AN INHERENT CHARACTERISTIC

Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/ 103 rejection. "There is nothing inconsistent in concurrent rejections for obviousness under 35 U.S.C. 103 and for anticipation under 35 U.S.C. 102." *In re Best*, 562 F.2d 1252, 1255 n.4, 195 USPQ 430, 433 n.4 (CCPA 1977). This same rationale should also apply to product, apparatus, and process claims claimed in terms of function, property or characteristic. Therefore, a 35 U.S.C. 102/ 103 rejection is appropriate for these types of claims as well as for composition claims.

(MPEP 2112). Thus, a rejection under 35 USC 102/103 is proper when the prior art product seems to be identical except that the prior art is silent as to an inherent characteristic. Neither product disclosed Takada et al. ('368) nor JP ('770 A) seems to be identical. The Examiner himself recognizes the difference and, therefore, alleges obviousness based on the combination of Takada et al. ('368) nor JP ('770 A). The Examiner admits that Takada et al. ('368) does not disclose that the worked Mo alloy material comprises a Mo nitride layer at the surface of the worked Mo alloy material as claimed. Also, JP ('770 A) has been cited for allegedly disclosing a Mo alloy with a Mo nitride layer having a thickness of 0.5 to 10 microns at the surface and the Mo nitride at the surface comprising gamma-Mo<sub>2</sub>N, beta-Mo<sub>2</sub>N and delta-MoN.

It is well established that, even a combination appears to be obvious, the combination can be patentable where there is significant unexpected result. If inherency is applicable against a combination of prior art references, even such unexpected results would be inherent in the combination. Thus, the rejection based on application of inherency to a combination of prior art references is in appropriate.

Second, the present invention shows unexpected results compared with Takada et al. ('368), even if the Examiner alleges that the strength of the material is “**expected**” instead of using the word “inherent.” There is no reasonable basis that the strength of the material is expected. As shown in the following Table 1, both yield strength and maximum strength are significantly improved by the external nitriding.

(Table 1)

|                  | Pure Mo | Material subjected to internal nitriding up to third step | (Internal nitriding up to third step) + (external nitriding) (2.8 $\mu$ m) |
|------------------|---------|---|--|
| Yield strength   | 550 MPa | 1190 MPa  | 1280 MPa   |
| Maximum strength | 750 MPa | 1620 MPa  | 1870 MPa   |

The thickness of molybdenum nitride increases with the heated temperature. It would be preferable to increase the layer thickness in view of corrosion resistance. However, the present inventors found that toughness was reduced with the increase in layer thickness. Also, the present inventors found that thickness of molybdenum nitride layer should be 3  $\mu$ m or less.

For at least these reasons, claims 1 and 7 patentably distinguish over Takada et al. ('368) and JP ('770A).

In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims are in condition for allowance. Applicants request such action at an early date.

Application No.: 10/509,156  
Art Unit: 1793

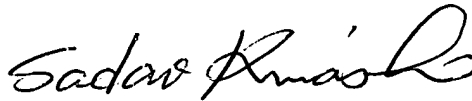
Amendment under 37 C.F.R. §1.111  
Attorney Docket No.: 042724

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "Sadao Kinashi", written in a cursive style.

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